Notice of Allowability	Application No.	Applicant(s)	
	09/834,008	MOCHIZUKI ET AL.	
	Examiner	Art Unit	
	Chih-Min Kam	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/22/04*.

2. ☒ The allowed claim(s) is/are *13,14,17-20,23-25,33-35 and 38-55*.

3. ☒ The drawings filed on *12 April 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 4/7/04; 12/07/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20050210* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

An **Examiner's Amendment** to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Rachel L. Adams on February 11, 2005.

Examiner's Amendments to the Specification:

Please insert the following paragraph after the title at page 1:

The present application is a continuation of PCT/JP99/05963, filed October 28, 1999, which claims the benefits of foreign priority from Japan Application No. 322874, filed October 28, 1998.

Please replace the term "Fig. 4 shows" at page 10, line 11 with "Figs. 4A and 4B show".

Please replace the term "Fig. 5 shows" at page 11, line 7 with "Figs. 5A and 5B show".

Please replace the abstract filed April 12, 2001 with the following abstract:

ABSTRACT

A novel bone-pathobolism treating agent is provided. A bone-pathobolism treating agent comprises at least one substance selected from the group consisting of osteoclastogenesis inhibitory factor (OCIF), its homologs, and its variants, and a polysaccharide or its derivatives. As the polysaccharide or its derivatives, heparin, dextran sulfate and the like can be used. A bone-pathobolism treating agent is provided which has excellent therapeutic effect on bone-pathobolism such as osteoporosis, hypercalcemia, or chronic articular rheumatism and persistence of the activity. The agent is useful as a medicine.

Examiner's Amendments to the Claims:

Claims 19, 20, 25, 33, 35, 43, 49, 52 and 53 have been amended as follows:

19. (Currently amended) The method of claim 13, wherein the weight ratio of human OCIF protein to polysaccharide is at least about 1:4 ~~OCIF : polysaccharide~~.

20. (Currently Amended) A method of treating a bone-pathobolism selected from the group consisting of: osteoporosis, hypercalcemia and chronic articular rheumatism comprising administering to a subject in need thereof a composition comprising an amount of human osteoclastogenesis inhibitory factor (OCIF) protein and a polysaccharide, effective in combination for increasing bone density~~,~~; wherein the polysaccharide is selected from the group consisting of: hyaluronic acid, chondroitin sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, carrageenan, pectin, heparin, dextran, dextran sulfate, and sulfated glucan~~,~~; thereby increasing the subjects bone density.

25. (Currently amended) The method of claim 20, wherein the weight ratio of human OCIF protein to polysaccharide in said composition is at least about 1:4 ~~OCIF : polysaccharide~~.

33. (Currently Amended) A medicinal composition for treating a bone-pathobolism selected from the group consisting of: osteoporosis, hypercalcemia and chronic articular rheumatism, said composition comprising: a human osteoclastogenesis inhibitory factor (OCIF) protein homolog selected from the group consisting of human OCIF2, human OCIF3, human OCIF4, and human OCIF5; and a polysaccharide selected from the group consisting of: hyaluronic acid, chondroitin sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, carrageenan, pectin, heparin, dextran, dextran sulfate, and sulfated glucan.

35. (Currently Amended) A method of treating a bone-pathobolism selected from the group consisting of: osteoporosis, hypercalcemia and chronic articular rheumatism comprising administering to a subject in need thereof a composition comprising an amount of a human osteoclastogenesis inhibitory factor (OCIF) protein homolog and a polysaccharide, effective in combination for increasing bone density;, wherein said OCIF protein homolog is selected from the group consisting of: human OCIF2, human OCIF3, human OCIF4, and human OCIF5; and wherein said polysaccharide is selected from the group consisting of: hyaluronic acid, chondroitin sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, carrageenan, pectin, heparin, dextran, dextran sulfate, and sulfated glucan;, thereby increasing the subjects bone density.

43. (Currently amended) The method of claim 40, wherein the weight ratio of human OCIF protein to polysaccharide is at least about 1:4 ~~OCIF : polysaccharide~~.

49. (Currently amended) The method of claim 46, wherein the weight ratio of human OCIF protein to polysaccharide is at least about 1:4 ~~OCIF : polysaccharide~~.

52. (Currently Amended) A lyophilized medicinal composition for treating a bone-pathobolism selected from the group consisting of: osteoporosis, hypercalcemia and chronic articular rheumatism, said composition comprising: a human osteoclastogenesis inhibitory factor (OCIF) protein homolog selected from the group consisting of human OCIF2, human OCIF3, human OCIF4, and human OCIF5, and a polysaccharide selected from the group consisting of: hyaluronic acid, chondroitin sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, carrageenan, pectin, heparin, dextran, dextran sulfate, and sulfated glucan.

53. (Currently Amended) A method of preparing a lyophilized medicinal composition for treating a bone-pathobolism selected from the group consisting of: osteoporosis, hypercalcemia and chronic articular rheumatism, said composition comprising a human osteoclastogenesis inhibitory factor (OCIF) protein homolog selected from the group

consisting of human OCIF2, human OCIF3, human OCIF4, and human OCIF5, and a polysaccharide selected from the group consisting of: hyaluronic acid, chondroitin sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, carrageenan, pectin, heparin, dextran, dextran sulfate, and sulfated glucan, said method comprising:

dissolving OCIF homolog and said polysaccharide in a solution; and

freeze-drying the solution comprising said OCIF homolog and said polysaccharide.

The following is an **Examiner's Statement of Reasons for Allowance**: The following reference appears to be the closest art to the claimed invention: Goldenberg *et al.* (WO 98/46211, October 22, 1998) teach a preparation of a sustained-released composition containing a biologically active agent, a hydrophilic polymer and at least one precipitating agent, where the biologically active agent can be osteoprotegerin and the hydrophilic polymer can be dextran sulfate, heparin or carrageenan. However, the reference does not teach the composition comprises a specific human OCIF homolog such as human OCIF2, human OCIF3, human OCIF4 or human OCIF5 and a specific polysaccharide as indicated in the claimed invention. Therefore, the claims are allowable over the art of record. A provisional double patenting rejection has been made against co-pending applications 10/183,091 and 10/364,045 in the Office Action dated August 23, 2004. Since this is the only rejection remaining for the instant application, while the other two applications have not been examined, the obvious double patenting rejection has been withdrawn.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (571) 272-0948. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached at 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Min Kam, Ph. D. CMK
Patent Examiner

CMK
February 11, 2005

JON WEBER
SUPERVISORY PATENT EXAMINER